OSH

Ladder-Climber Safety-Rail Systems

Interim Safety Advisory Issued for Fall Protection

Maintenance and repair of equipment at high elevations present significant fall hazards when workers access the equipment by climbing vertical ladders. Ashore, fixed vertical ladders often are designed with the familiar cage enclosures that meet OSHA regulations but do not, by themselves, provide state-of-the-art fall protection. The method of fall protection commonly used shipboard is a fixed-rail climber-safety system attached to the ladder. It provides an alternative to cage designs, as well as greater benefit in terms of fall protection.

Fig. 1—A worker moves along a water tower's curved surface using a fixed-rail system.

This article highlights recent safety concerns with these fixed-rail systems, offers interim hazard-control measures, and provides guidance for minimizing the risk of falls during climbing operations. It is important to advise everyone who uses these ladder-climber-rail systems, both ashore and afloat, of the safety notices concerning them and pending product recalls.

Fixed-rail fall-prevention systems can provide safe, effective climbing conditions for workers on any site and on straight or curved ladders. On water tanks, chimneys, antennas, communication towers, wind generators, ship's masts, or any other structure, rigid-rail fall-prevention systems give climbers the protection and security they need to be effective and productive *(see fig. 1)*.

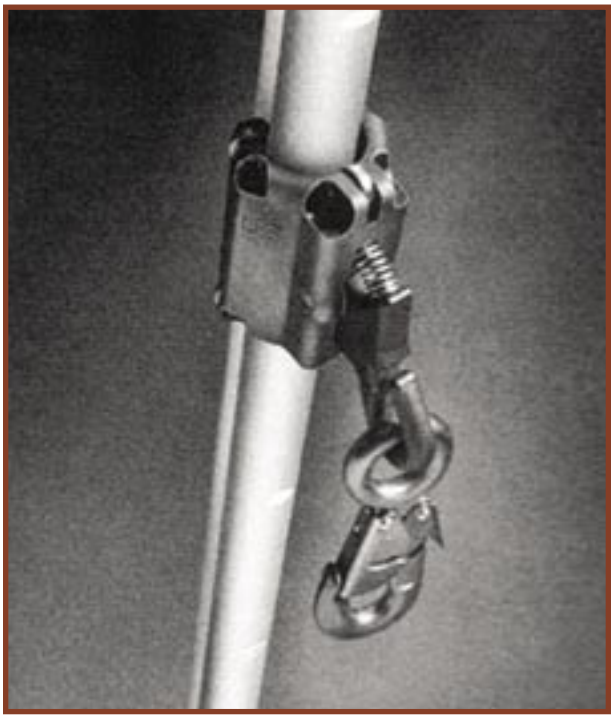

Fig. 2—People who use this Antenna Products SCE-2 safety sleeve and rail are urged also to use a shock-absorbing Y-lanyard.

Fig. 3—This North Safety Products Saf-T-Lok climber sleeve is another device for which it's recommended that users have a shock-absorbing Y-lanyard in place, too.

The major benefit of these fixed-rail systems is that they provide secure attachment of the climber's harness to the rail and sleeve, automatically actuate a locking pawl in case of a fall, and lock the sleeve onto the notched rail. The safety sleeve therefore allows the climber to focus on climbing and keep his/her hands on the ladder at all times.

However, fall incidents involving fixed-rail ladder-climbing systems have been reported in the Netherlands, Austria and Germany. Three cases, one fatal, involved the arrestor sleeve running off the end of the rail, even though end stops were installed. In two cases, falls occurred with little injury, although the arrestor sleeves failed to operate properly. In two more cases, device failure resulted in death or serious injury, and in one instance, the arrestor functioned properly, but the connector failed, causing serious injury. As a result of these employee falls and/or slippage of the fall-arrestor sleeve along the rail, two suppliers of fixed-rail climber-safety systems have issued safety notices regarding these products and their usage. Both have indicated that, upon design review and change, the existing safety sleeves will be recalled and free replacements issued.

North Safety Products, manufacturers of the Saf-T-Climb fall-protection system, issued an advisory in late October 2006. The advisory noted that a product review and upgrade was being conducted, and based on that review, a recall and free replacement of the existing safety sleeves would be the probable outcome. On 12 March 2007, Antenna Products Corporation followed with a similar safety notice, stating that "under certain conditions, the SCE-2 safety sleeves may fail to function as designed and may allow a climber to free-fall a distance sufficient to cause serious injuries or death."

Both advisories recommend the use of a shock-absorbing Y-lanyard, in addition to or in place of the safety sleeve, as an interim measure to minimize the fall potential. Access both safety advisories from the Safety Center's website at www.safetycenter.navy.mil/ashore/recalls/.

Affected climber-safety sleeves are the following:

- Antenna Products Corp. (Cage 06032), SCE-2 sleeve, part No. 1000-1672-401 and 1000-0425-401, NSN (9B)4240-01-042-9688. Refer to www.antennaproducts.com/tubular.html *(see fig. 2)*.
- North Safety Products (Cage: 0VTP4), Saf-T-Lok sleeve, part No. 602-100-001 and 602-100-002, NSN (9B)5445-00-915-3121. Refer to www.saf-t-climb.com *(see fig. 3)*.

These two suppliers account for most, if not all, of the climber sleeves used in the fleet. Ashore, however, it is not clear how widespread the usage of these ladder-climber systems may be, or whether similar products by other vendors are in use. If other vendors' sleeves are being used,

Fig. 4—A double shock-absorbing North Saf-T-Y lanyard like this is recommended when using the items in figures 2 and 3.

Fig. 5—Here is an offset climber-rail installation on a narrow shipboard ladder. Installation in the center of a ladder is preferred.

they also may exhibit the same design deficiency and should be subject to the same level of inspection, use of shock-absorbing Y-lanyards (as an interim safety measure), and follow-up with the manufacturer regarding the safety of use and/or recall status of the safety sleeve.

Interim Control Measure

All users of climber-safety sleeves **must** tie off with an appropriate shock-absorbing Y-lanyard, not more than six feet long and which complies with the ANSI Z359.1 standard, Safety Requirements for Personal Fall-Arrest Systems, Subsystems and Components. The Y or double lanyard allows the climber to be tied off by at least one leg of the lanyard at all times, during the climb. These lanyards must be used in accordance with the instructions of the manufacturer or supplier.

Users of all Antenna Products SCE-2 climber systems and North Saf-T-Climb stainless steel or galvanized rail systems must use the double or Y-lanyard **in addition to** (e.g., as a supplement to) the climber sleeve and harness equipment.

Users of North systems having aluminum rails must use **only** the double or Y-lanyard, instead of the climber sleeve. For further guidance or clarification, refer to the specific manufacturer's safety notice. This interim guidance remains in effect until the recall of the current climber-safety sleeves is resolved and/or further guidance is formally published.

Additional Guidance

The use of Y lanyards impedes the rate of climbing. Climbers will be required to latch and unlatch alternate snap hooks every two to three ladder treads. Therefore, it is critically important that caution be exercised when performing this leap-frogging action, because hands are not dedicated solely to the act of climbing. Until Y lanyards and/or replacement sleeves are available, it is recommended that climbing aloft be limited to essential purposes only.

Climbers should exercise the following caution when ascending or descending a ladder with a climber-safety rail:

- Keep body as vertical as possible and tight against the ladder face.
- Hands shall be free and dedicated to climbing only.
- All equipment and tools shall be hoisted up or down with a tether line or carried in backpacks.

All users immediately shall inspect all climber-safety sleeves in accordance with PMS maintenance requirements cards (MRCs) or the manufacturer's maintenance guidelines. Pay particular attention to the condition of the locking pawl to ensure its tip is not worn or dam-

Fig. 6—An MSA lanyard with tie-back rings like this is an authorized model.

Fig. 7—Another authorized lanyard is this DBI-SALA EZ Stop II.

aged. Ensure springs are operational and that the locking pawl returns freely to the catch position when released. Remove any discrepant or suspect sleeves from service and retain for turn-in during the recall effort.

Inspect all ladder-climber safety rails and mounting brackets. Pay particular attention to the mounting hardware. Ensure that hardware securing the climber rail to guide channel and climber rail to structural mounting brackets are not loose, missing or broken. Ensure ladder-rail notches are not deformed or clogged with dirt/debris. *(Note: Notches should be 5/32-inch deep with a square bottom).* Where sections of climber rails are spliced together, ensure a connecting strap is installed. If discrepancies are found, remove ladder and climber rail from service and report discrepancies to the workcenter supervisor for corrective action.

All users of ladder-climber safety-rail systems, sleeves and Y lanyards must be trained in the appropriate donning, attachment points, usage procedures, and routine inspections of the equipment.

Afloat users of fixed-rail ladder-climber-safety systems and sleeves should refer to the NAVSSES In-Service Engineering Advisory No. 029-07, Safety Recall/Notice of Climber Safety Sleeves on Surface Ships and Procedures.

Recommended Vendors

Authorized Y lanyards can be purchased from the following vendors, at a cost range of $75-$150 each:

- MSA part No. 10021673, lanyard with Dynabrake, twin leg, with tie-back rings *(see fig. 6).*
- MSA part No. 10021661, lanyard with Dynabrake. MSA customer service POC: Karen Limbert, (866) 672-1001, request ext. 3090, or e-mail karen.limbert@msanet.com.
- DBI-SALA part No. 1220416, EZ Stop II shock-absorbing lanyard. Contact DBI-SALA customer service at (800) 328-6146, selection No. 1. E-mail solutions@capitalsafety.com *(see fig. 7).*
- North Safety Products, part No. 732-201-076, Saf-T-Y-Lanyard. North customer service POC: Tina Bhela, (416) 675-2810, ext. 313, e-mail tbhela@northsafety.ca. *(see fig. 4).*

References

- OPNAVINST 5100.23G, Navy Safety and Occupational Health Manual, Chapter 13.
- North Safety Products – Safety Notice – Re: Use of Shock-Absorbing Y-Type Lanyards – 30 Oct 2006 *(see www.saf-t-climb.com).*
- Antenna Products Corp. – Safety Notice – SCE-2 Safety Climb Fall-Protection Systems dated 28 Feb 07 and revised 12 March 2007 *(see www.antennaproducts.com/tubular.html.*
- NAVSURFWARCEN NAVSSES Philadelphia PA, R171205Z MAY 07 – ISE Advisory 029-07 – Safety Recall/Notice of Climber-Safety Sleeves on Surface Ships and Procedures *(refer to www.safetycenter.navy.mil/ashore/recalls).*

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